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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/462,863 | 05/08/2000 | ULRICH BENZLER | 10191/1227 | 5597 |

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EXAMINER

AN, SHAWN S

ART UNIT PAPER NUMBER

2613

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

[Handwritten signature]

Office Action Summary

Application No.
09/462,863

Applicant(s)
Ulrich Benzler et al.

Examiner
Shawn An

Art Unit
2613



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 8, 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-12 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 7 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

1. As per Applicant's instructions in Paper 5 as filed on 5/8/00, claims 1-5 have been canceled and claims 6-12 have been newly added.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over ZIEGLER (Corporate Research & Development) in view of Thomas (4,890,160).

Regarding claims 6-7, ZIEGLER discloses a method for generating an image when estimating a motion of image sequences, the method comprising the steps of:

determining a first motion vector with a pixel accuracy (Fig. 5, element 1);

determining a second motion vector with a sub-pixel accuracy (element 2), wherein a resolution being selected to be higher (refined accuracy) than a resolution of a pixel raster in the first search;

determining a third motion vector by a further interpolation (element 3), wherein the resolution is increased once more, and the interpolation is carried out on the basis of a pixel raster.

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ZIEGLER does not specifically disclose utilizing aliasing reducing interpolation filtering, and more than four neighboring pixels being utilized for an interpolation of each pixel.

However, Thomas teaches motion vector detecting method comprising aliasing reducing interpolation filtering, and more than four neighboring pixels being utilized for an interpolation of each pixel in order to reduce the effects of noise (col. 9, lines 25-55).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a method for generating an image when estimating a motion of image sequences as taught by ZIEGLER to incorporate the well known concept of aliasing reducing interpolation filtering, and more than four neighboring pixels being utilized for an interpolation of each pixel as taught by Thomas in order to reduce the effects of noise.

Regarding claim 8, bilinear interpolation, a well known spatial interpolation technique, is used to generate such prediction data of $\frac{1}{2}$ pixel precision, thus considered an obvious feature.

Regarding claims 9 and 10, FIR filter is well known in the art, including mathematics for estimating a value of a particular pixel at a certain frame. Therefore, it is considered quite obvious (simple design choice) to use filter coefficients such as 0, $\frac{1}{2}$, $-\frac{43}{256}$, $\frac{23}{256}$, or $-\frac{8}{256}$ in order to have a better results, such as reducing the aliasing effect.

Regarding claim 12, a conventionally well known encoder comprises encoding of a motion vector for transmission, and a range of values of motion vector difference to be coded to an increased/decreased resolution depending on the application and practical usage.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over ZIEGLER and Thomas as applied to claim 6 above, and further in view of Eifrig et al (5,991,447).

Regarding claim 11, the combination of ZIEGLER and Thomas does not particularly disclose predicting video objects separately, and inserting coefficients into a transmission bit stream at a beginning.

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However, Eifrig et al teaches predicting video objects separately (Abs.), and inserting coefficients into a transmission bit stream (140) at a beginning in order to achieve efficient coding, object scalability, spatial and temporal scalability, and less error.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a method for generating an image when estimating a motion of image sequences as taught by ZIEGLER to incorporate the well known concept of predicting video objects separately, and inserting coefficients into a transmission bit stream at a beginning as taught by Eifrig et al in order to achieve efficient coding, object scalability, spatial and temporal scalability, and less error.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A) Kim et al (5,502,489), Method for the motion adaptive spatial filtering of video s signals in an image coding apparatus.
- B) Chen et al (6,057,884), Temporal and spatial scalable coding for video object planes.
- C) Sezan et al (5,600,731), Method for temporally adaptive filtering of frames of a noisy image sequence using motion estimation.
- D) Knauer et al (5,043,808), High definition television arrangement employing motion compensated prediction error signals.
- E) Taubman (6,122,017), Method for providing motion compensated multi-field enhancement of still images from video.

6. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday through Friday.

SHAWN S. AN
PATENT EXAMINER



SSA

September 24, 2002